

Claims

The following list of claims replaces all prior listings of claims. Please note that no claims have been amended, canceled, withdrawn, or added, by this communication.

1. (previously presented) A refrigerated dough composition comprising an encapsulated basic active ingredient, a non-encapsulated acidic active ingredient, and a barrier material, wherein
at below baking temperature the barrier material encapsulates the basic active ingredient and separates the basic active ingredient from the non-encapsulated acidic active ingredient to inhibit reaction of basic active ingredient and acidic active ingredient,
the encapsulated basic active ingredient has an activity in the range from about 55 percent to about 70 percent;
the non-encapsulated acidic active ingredient is selected to have relatively low solubility in the dough composition below baking temperature and to be substantially soluble in the bulk dough composition during baking,
the barrier material degrades at or above the baking temperature to allow the basic active ingredient and the acidic active ingredient to come into contact in the dough composition and react to substantially leaven the dough composition during baking, and
the dough composition when stored at refrigerator conditions for a time-period of at least 12 weeks, is capable of exhibiting the following properties:
the dough composition experiences less than 35 percent expansion during a time period beginning upon completion of the dough composition preparation and continuing through packaging and refrigerated storage, and
the dough composition has a raw specific volume from about 0.9 to about 1.3 cubic centimeters per gram, and when baked, has a baked specific volume of at least about 2.5 cubic centimeters per gram.
2. (canceled)
3. (previously presented) The composition of claim 1 wherein the dough composition contains from about 0.25 to about 2 wt% basic active ingredient encapsulated in the barrier material, and an amount of acidic active ingredient to neutralize the encapsulated basic active ingredient.

4. (original) The composition of claim 3 wherein the composition contains no other leavening ingredient except for the separated about 0.25 to about 2 wt% basic active ingredient and the amount of acidic active ingredient to neutralize the about 0.25 to about 2 wt% encapsulated basic active ingredient.
5. (original) The composition of claim 1 wherein the acidic active ingredient comprises a suspended solid that is relatively insoluble at processing and refrigerated storage temperatures, which dissolves and solubilizes into the aqueous phase of the dough composition when the dough composition reaches a baking temperature in the range from about 100°F to 200°F.
6. (original) The composition of claim 1 wherein the acidic active ingredient has a solubility of greater than 35 kcal/mole.
7. (previously presented) The composition of claim 1 wherein the acidic active ingredient exhibits solubility behavior similar to sodium aluminum phosphate.
8. (original) The composition of claim 1 wherein the acidic active ingredient is sodium aluminum phosphate.
9. (previously presented) The composition of claim 1 wherein the dough composition experiences less than 20 percent expansion during the time period.
10. (previously presented) The composition of claim 1 wherein the basic active ingredient is soluble in a water phase of the dough composition at one or more of a processing or refrigeration storage temperature.
11. (previously presented) The composition of claim 1 wherein the basic active ingredient is chosen from the group consisting of sodium bicarbonate, potassium bicarbonate, ammonium bicarbonate, and combinations thereof.

12. (original) The composition of claim 1 wherein the barrier material has a melting temperature of at least 90°F.

13. (original) The composition of claim 12 wherein the barrier material comprises a fat-type barrier material selected from the group consisting of palm oil, palm kernel oil, canola oil, a synthetic analog of palm kernel oil or canola oil, and combinations thereof.

14. (canceled)

15. (original) The composition of claim 1 wherein the encapsulated particles have an average size in the range from about 100 to about 420 microns.

16. (original) The composition of claim 1 wherein the basic active ingredient is sodium bicarbonate.

17. (original) The composition of claim 1 wherein the baking temperature is in the range from about 100°F to about 200°F.

18. (previously presented) The composition of claim 1 wherein the dough composition experiences less than 20 percent expansion during the time period.

19. (original) The composition of claim 1 comprising encapsulated particles comprising particulates of basic active ingredient dispersed in a barrier material coating, wherein the size and composition of the particulates, and the relative amount, thickness, and composition of the barrier material coating, are selected such that the basic active ingredient particulates become exposed to bulk dough composition and become hydrated during baking.

20. (previously presented) The dough composition of claim 1 comprising encapsulated particles comprising basic active ingredient particulates coated by barrier material, and further comprising encapsulated particles comprising acidic active ingredient particulates coated by barrier material.

21. (canceled)

22. (original) The composition of claim 20 wherein the barrier materials are the same or different, and each independently has a melting point in the range from about 90°F to about 160°F.

23. (original) The composition of claim 20 wherein the barrier materials are the same or different and independently comprise a vegetable oil chosen from the group consisting of palm kernel oil, canola oil, a synthetic analog of palm oil, palm kernel oil or canola oil, and combinations thereof.

24. (original) The dough composition of claim 20 wherein
at below baking temperature the barrier materials separate each of the basic active ingredient and acidic active ingredient from bulk dough composition, and
the barrier materials degrade at or above baking temperature to allow the basic active ingredient and acidic active ingredient to come into contact in the bulk dough composition to react and leaven the dough composition during baking.

25. (original) The dough composition of claim 20 wherein the acidic active ingredient is selected from the group consisting of sodium aluminum phosphate, sodium aluminum sulfate, sodium acid pyrophosphate, monosodium phosphate, monocalcium phosphate monohydrate, anhydrous monocalcium phosphate, dicalcium phosphate dihydrate, and mixtures thereof.

26. (original) The dough composition of claim 20 wherein the acidic active ingredient is selected from the group consisting of sodium aluminum phosphate, sodium acid pyrophosphate, and mixtures thereof.

27. (previously presented) A refrigerated dough composition comprising an encapsulated basic active ingredient, a non-encapsulated acidic active ingredient, and a barrier material, wherein

at below baking temperature the barrier material encapsulates the basic active ingredient and separates the basic active ingredient from the non-encapsulated acidic active ingredient to inhibit reaction of basic active ingredient and acidic active ingredient,

the encapsulated basic active ingredient has an activity in the range from about 55 percent to about 70 percent;

the non-encapsulated acidic active ingredient is selected to have relatively low solubility in the dough composition below baking temperature and to be substantially soluble in the bulk dough composition during baking,

the barrier material degrades at or above baking temperature to allow the basic active ingredient and acidic active ingredient to come into contact in the dough composition and substantially leaven the dough composition during baking,

the dough composition is refrigeration stable such that no more than 0.46 cubic centimeters of carbon dioxide is released from the dough composition per gram of dough composition over a twelve week period of storage at about 45°F, and

the dough composition when stored at refrigerator conditions for a time-period of at least 12 weeks, has a raw specific volume from about 0.9 to about 1.3 cubic centimeters per gram, and when baked, has a baked specific volume of at least about 2.5 cubic centimeters per gram.

28. (original) The composition of claim 27 wherein the barrier material comprises a vegetable oil selected from the group consisting of palm oil, palm kernel oil, canola oil, and combinations thereof.

29. (previously presented) A refrigerated, packaged dough composition comprising an encapsulated basic active ingredient, a non-encapsulated acidic active ingredient, a barrier material, and a package, wherein

at below baking temperature the barrier material encapsulates the basic active ingredient and separates the basic active ingredient from the non-encapsulated acidic active ingredient to inhibit reaction of basic active ingredient and acidic active ingredient,

the encapsulated basic active ingredient has an activity in the range from about 55 percent to about 70 percent,

the non-encapsulated acidic active ingredient is selected to have relatively low solubility in the dough composition below baking temperature and to be substantially soluble in the bulk dough composition during baking,

the barrier material degrades at or above the baking temperature to allow the basic active ingredient and the acidic active ingredient to come into contact in the dough composition and react to substantially leaven the dough composition during baking,

the dough composition is contained within the package, wherein the package comprises a non-pressurized pouch or cup, and

the dough composition when stored at refrigerator conditions for a time-period of at least 12 weeks, has a raw specific volume from about 0.9 to about 1.3 cubic centimeters per gram, and when baked, has a baked specific volume of at least about 2.5 cubic centimeters per gram.

30. (previously presented) The composition of claim 29 wherein the dough composition contains from about 0.25 to about 2 weight percent basic active ingredient separated by barrier material from an amount of acidic active ingredient sufficient to neutralize the basic active ingredient.

31. (previously presented) The composition of claim 29 wherein the barrier material has a melting point in the range from about 90°F to about 160°F.

32. (previously presented) The composition of claim 29 wherein the basic active ingredient is chosen from the group consisting of sodium bicarbonate, potassium bicarbonate, ammonium bicarbonate, and mixtures thereof.

33. (previously presented) The composition of claim 32 wherein the baking temperature is greater than 100°F.

34. (previously presented) The composition of claim 29 wherein the barrier material comprises a hydrophobic material selected from the group consisting of a fat, an emulsifier, and combinations thereof.

35. (previously presented) A method of producing a cooked dough product, the method comprising

combining dough ingredients into a bulk dough composition comprising an encapsulated basic active ingredient, a non-encapsulated acidic active ingredient, and a barrier material, wherein at below baking temperature the barrier material encapsulates the basic active ingredient and separates the basic active ingredient from the non-encapsulated acidic active ingredient to inhibit reaction of basic active ingredient and acidic active ingredient, wherein the encapsulated basic active ingredient has an activity in the range from about 55 percent to about 70 percent, wherein the non-encapsulated acidic active ingredient is selected to have relatively low solubility in the dough composition below baking temperature and to be substantially soluble in the bulk dough composition during baking, and wherein the dough ingredients are combined at a temperature below the melting temperature of the barrier material,

packaging the dough composition in a packaging material,

refrigerating the packaged dough composition at a temperature below the melting temperature of the barrier material such that the dough composition has a raw specific volume from about 0.9 to about 1.3 cubic centimeters per gram after the refrigerating step,

baking the dough composition at a temperature that raises the bulk dough composition to a baking temperature above the melting temperature of the barrier material such that the barrier material melts, exposing the basic active ingredient to the bulk dough composition, allowing the basic active ingredient and acidic active ingredient to react to leaven the dough composition during baking so as to provide a baked specific volume of at least about 2.5 cubic centimeters per gram, and

wherein the dough composition experiences less than 35 percent expansion during a time period beginning immediately after the combining step and continuing through each of the packaging and the refrigerating steps.

36. (previously presented) The composition of claim 1 wherein
the basic active ingredient is encapsulated by a barrier material having a solid fat index of at least about 50% at 75°F,
the acidic active ingredient is not encapsulated.

37. (previously presented) The dough composition of claim 27 wherein the acidic active ingredient is selected from the group consisting of sodium aluminum phosphate, sodium aluminum sulfate, sodium acid pyrophosphate, monosodium phosphate, monocalcium phosphate monohydrate, anhydrous monocalcium phosphate, dicalcium phosphate dihydrate, and mixtures thereof.

38. (previously presented) The composition of claim 27 wherein the acidic active ingredient exhibits solubility behavior similar to sodium aluminum phosphate.

39. (previously presented) The dough composition of claim 27 wherein the acidic active ingredient is sodium aluminum phosphate.

40. (previously presented) The method of claim 35 wherein the acidic active ingredient is selected from the group consisting of sodium aluminum phosphate, sodium aluminum sulfate, sodium acid pyrophosphate, monosodium phosphate, monocalcium phosphate monohydrate, anhydrous monocalcium phosphate, dicalcium phosphate dihydrate, and mixtures thereof.

41. (previously presented) The method of claim 35 wherein the acidic active ingredient exhibits solubility behavior similar to sodium aluminum phosphate.

42. (previously presented) The method of claim 35 wherein the acidic active ingredient is sodium aluminum phosphate.

43. (previously presented) The composition of claim 1, wherein the dough composition is refrigeration stable such that no more than 0.46 cubic centimeters per gram of carbon dioxide is released from the dough composition over a twelve week period of storage at about 45°F.

44. (previously presented) A packaged dough composition including the dough composition of claim 1, wherein the packaging comprises a non-pressurized pouch or cup.

45. (canceled)

46. (previously presented) A packaged dough composition including the dough composition of claim 27, wherein the packaging comprises a non-pressurized pouch or cup.

47. (previously presented) The composition of claim 29, wherein the dough composition is refrigeration stable such that no more than 0.46 cubic centimeters per gram of carbon dioxide is released from the dough composition over a twelve week period of storage at about 45°F.

48. (previously presented) The composition of claim 29, wherein the encapsulated basic active ingredient is made by an encapsulation method using a fluidized bed.

49. (canceled)

50. (previously presented) The method of claim 35, wherein the dough composition is refrigeration stable such that no more than 0.46 cubic centimeters per gram of carbon dioxide is released from the dough composition over a twelve week period of storage at about 45°F.

51. (previously presented) The method of claim 35, wherein the basic active ingredient is encapsulated with the barrier material by an encapsulation method using a fluidized bed.

52. (canceled)

53. (previously presented) A method of producing a cooked dough product, the method comprising

combining dough ingredients into a bulk dough composition comprising an encapsulated basic active ingredient, a non-encapsulated acidic active ingredient, and a barrier material, wherein at below baking temperature the barrier material encapsulates the basic active ingredient and separates the basic active ingredient from the non-encapsulated acidic active ingredient to inhibit reaction of basic active ingredient and acidic active ingredient, wherein the encapsulated basic active ingredient has an activity in the range from about 55 percent to about 70 percent, wherein the non-encapsulated acidic active ingredient is selected to have relatively low solubility in the dough composition below baking temperature and to be substantially soluble in the bulk dough composition during baking, and wherein the dough ingredients are combined at a temperature below the melting temperature of the barrier material,

packaging the dough composition in a package comprising a non-pressurized pouch or cup,

refrigerating the packaged dough composition at a temperature below the melting temperature of the barrier material such that the dough composition has a raw specific volume from about 0.9 to about 1.3 cubic centimeters per gram after the refrigerating step, and

baking the dough composition at a temperature that causes bulk dough composition to reach a baking temperature above the melting temperature of the barrier material such that the barrier material melts, exposing the basic active ingredient to the bulk dough composition, allowing the basic active ingredient and acidic active ingredient to react to leaven the dough composition during baking so as to provide a baked specific volume of at least about 2.5 cubic centimeters per gram.

54. (canceled)

55. (canceled)

56. (previously presented) The method of claim 35, wherein the refrigerating step includes a time-period of at least 12 weeks.

57. (canceled)

58. (previously presented) A method of producing a cooked dough product, the method comprising

combining dough ingredients into a bulk dough composition comprising an encapsulated basic active ingredient, a non-encapsulated acidic active ingredient, and a barrier material, wherein at below baking temperature the barrier material encapsulates the basic active ingredient and separates the basic active ingredient from the non-encapsulated acidic active ingredient to inhibit reaction of basic active ingredient and acidic active ingredient, wherein the encapsulated basic active ingredient has an activity in the range from about 55 percent to about 70 percent, wherein the non-encapsulated acidic active ingredient is selected to have relatively low solubility in the dough composition below baking temperature and to be substantially soluble in the bulk dough composition during baking, and wherein the dough ingredients are combined at a temperature below the melting temperature of the barrier material,

packaging the dough composition in a packaging material,

refrigerating the packaged dough composition at a temperature below the melting temperature of the barrier material such that the dough composition has a raw specific volume from about 0.9 to about 1.3 cubic centimeters per gram after the refrigerating step,

baking the dough composition at a temperature that raises the bulk dough composition to a baking temperature above the melting temperature of the barrier material such that the barrier material melts, exposing the basic active ingredient to the bulk dough composition, allowing the basic active ingredient and acidic active ingredient to react to leaven the dough composition during baking so as to provide a baked specific volume of at least about 2.5 cubic centimeters per gram, and

wherein the dough composition is refrigeration stable such that no more than 0.46 cubic centimeters of carbon dioxide is released from the dough composition per gram of dough composition over a twelve week period of storage at about 45°F.

59. (previously presented) The composition of claim 1, wherein the encapsulated basic active ingredient has an activity in the range from about 60 percent to about 70 percent.